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AUTHOR Bird, Ronald; Wakeman, Douglas
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ABSTRACT

An analysis of data from the March 1985 Current Popluation Survey issued by the United States Census Bureau involved consideration of earnings characteristics of teachers and other college-educated workers in Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina. This report provides estimates of the beginning and average teacher salary levels that should be reached in order to ensure that the public schools are able to attract and retain talented and capable individuals as teachers. Sections of the report cover: the Comparability Principle used to estimate teacher salaries and compare them with salaries of other college-educated workers; method of analysis; results of analysis; an Earnings Comparability Mutiple Regression Model; and conclusions and recommendations. It was concluded that, although beginning teacher salaries in the Southeast have risen steadily over the past four years, the average teacher salary in the Southeast is still below the average starting salary of other college-educated workers. Furthermore, there has been little progress in closing the gap between the average teacher salary and the average salary of other college-educated workers. (CB)

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Ronald Bird
Douglas Wakeman

December 1986

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An Analysis of the Comparability of Teacher Salaries to the Earnings of Other College Graduates in the Southeast: 1986 Update

Ronald Bird
Douglas Wakeman

December 1986

Southeastern Educational Improvement Laboratory
200 Park Offices, Suite 204, Post Office Box 12746
Research Triangle Park, North Carolina 27709

919/549-8216 800/237-4829

Table of Contents

Executive Summary i

List of Tables v

List of Figures vi

Introduction 1

The Comparability Principle 6

Method of Analysis 8

Results of Analysis: Mean Values of Variables 10

Earnings Comparability Multiple Regression Model 18

Conclusions and Recommendations 30

References 35

Executive Summary

An Analysis of the Comparability of Teacher Salaries to the Earnings of Other College Graduates in the Southeast: 1986 Update

The improvement of teaching and the maintenance of an excellent and adequate teacher work force have been identified as critical education needs of the United States in the 1980's. To achieve their dual goals of excellence and adequacy in teacher supply, education policy makers have emphasized the need to improve teacher salaries. Education policy makers in the Southeast and throughout the nation have come to realize that in order to attract and retain professionally committed teachers, the public schools must offer salaries that are competitive with alternatives available in other occupations.

The purpose of this report is to provide estimates of the beginning and average teacher salary levels that should be reached in order to insure that the public schools are able to attract and retain talented and capable individuals as teachers. It is the third in a series of teacher salary comparability analyses that have been conducted in the Southeast region.

The Comparability Principle

Estimates of beginning and average teacher salaries are based on the principle that, to attract individuals into the profession and to retain them as teachers, the salary offered must be comparable to the earning opportunities available to those same individuals in other occupations for which they may be qualified for entry.

The economic principle of comparability used in this analysis is based on three assumptions:

(1) individuals will choose from among the alternatives available to them the occupation perceived to have the highest expected earning level unless the non-pecuniary satisfactions and attributes of a lower paying occupation are perceived by the individual to be sufficient to compensate for the monetary difference;

(2) many of the desirable attributes for teachers -- intellectual capacity, communications skill, energy, and creativity -- are also desirable attributes for success in most other occupations in which college graduates find employment; and

(3) individuals more richly endowed with these desirable attributes are more likely to earn higher average salaries than individuals less endowed with such attributes. This assumption is a statement about the probablity of earnings increasing with ability. It is not an assumption of an absolute or deterministic relationship.

These assumptions imply that if teacher salaries are below the average earnings for college graduates in other occupations, then the pool of potential teacher applicants will be smaller and relatively less qualified than it would be if teacher salaries were equal to or above the average earnings for college graduates in other occupations.

The qualitative goal of teacher work force policy is to recruit teachers who possess abilities at least on a par with the average of other college educated workers in the Southeast. The quantitative goal is assumed to be the development of a pool of potential entrants to teaching which is equivalent to the pool of entrants to other occupations employing college graduates. It follows that to develop a teaching profession of above-average ability compared to other college graduates would require achieving teacher salary targets even higher than those developed in this report.

Earnings Comparability Multiple Regression Model

Average characteristics of teachers and non-teachers in the Southeast were compiled using the March 1985 Current Population Survey (CPS) data tape issued by the U. S. Census Bureau. The sample was selected to include only those individuals in six Southeastern states (Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina) who have at least graduated from college and are employed full-time. The resulting dataset includes 991 observations of college graduates who were employed in occupations other than teaching during the year prior to March 1985 and 191 observations of college graduates who were employed as public school teachers during that time.

There are significant differences between the non-teacher and teacher groups in terms of sex, race, and urbanism. The non-teacher group is more white (88% vs. 78%), more male (68.9% vs. 20.9%), and more urban (71% vs. 59%) than the teacher group. The average earnings level of non-teachers in the 1985 CPS sample was $29,688 compared to only $18,940 for teachers.

Simple comparisons of average earnings are inadequate because they do not take into account the variations in other characteristics that may be relevant between teachers and non-teachers. A regression equation was developed to express the statistical relationship between annual earnings of non-teaching college graduates and various explanatory variables. The regression equation estimates the natural logarithm of annual earnings as a function of education, experience, experience squared, sex, race, urbanism, weeks worked, hours worked, and state of residence.

The mean years of education for teachers in the CPS sample and other values based on the average characteristics of the non-teaching college graduates in the Southeast were substituted into the regression equation. The results were estimates of the average earning opportunity within each state for a person with the education of the typical teacher who chooses a non-teaching occupation. Based on being competitive with salaries earned in a twelve-month period, the average salary level necessary to make public school teaching attractive with other occupations of college graduates in the Southeast is calculated to be $29,688 for the region as a whole. Individual state estimates of average teacher salary comparable to that of other college-educated workers range from $26,648 (Mississippi) to $33,042 (Georgia).

The model also was used to estimate beginning salary levels necessary to make teaching competitive with beginning salaries in other employment alternatives for college graduate workers in the Southeast. The values of experience and education were set to entry level expectations (bachelor's degree and no experience). The competitive beginning salary estimate obtained for the region as a whole for a twelve-month period was $19,609. Actual beginning salaries in the region in 1985 (according to estimates by the American Federation of Teachers and states) ranged from $13,875 (Mississippi) to $18,988 (South Carolina).

Finally, the regression model was used to estimate a recommended teacher salary schedule. By successively substituting different values for experience and education into the regression equation, it is possible to show how earnings in non-teaching occupations vary as education and experience increase. These estimates provide a basis for a comparable teacher salary schedule.

Teacher Salary Schedule Based on Salaries of Average College Graduate Workers in the Southeast with Similar Education and Experience

Years of Experience	Years of Education 17	18	19	20
0	$19,609	$21,057	$22,612	$24,282
1	$20,210	$21,703	$23,306	$25,028
2	$20,830	$22,369	$24,021	$25,795
5	$22,807	$24,492	$26,301	$28,294
10	$26,527	$28,487	$30,591	$32,850
20	$35,887	$38,538	$41,384	$44,441

Conclusions

Beginning teacher salaries in the Southeast have risen steadily over the past four years. However, the average teacher salary in the Southeast still remains below the average beginning salary of other college-educated workers. Further, since income has been rising in other occupations as well, there has been little progress in closing the gap between the average teacher salary and the average salary of other college-educated workers. It would cost the six southeastern states over $2.3 billion to provide average teacher salary levels that would be competitive and allow public schools to to attract and retain talented and capable individuals as teachers. Many states in the Southeast are now beginning to implement career ladder plans that could address this issue. However, whether states can or will be able to commit the additional expenditures needed to fully implement such plans remains to be seen.

List of Tables

1. Percentage Increases in Teacher Salaries in the Six Southeastern States (1983-1986) 3

2. Average Annual Teacher Salaries in the Six Southeastern States (1983-1986) 4

3. Characteristics of the College Graduate Work Force in the Six Southeastern States 11

4. Average Earnings of College-Graduate Workers in the Six Southeastern States (1983-85) 13

5. Comparison of Annual Earnings of All Workers, College Graduate Workers, and Teachers (1985) 15

6. Earnings of College-Graduate Workers in Selected Occupations in the Six Southeastern States (1985) 17

7. Results of Multiple Regression Analysis of Earnings of College-Graduate Workers in the Six Southeastern States 19

8. Estimates of Average Teacher Salary Levels Necessary to Make Public School Teaching Salaries Comparable With Other Occupations for College Graduate Workers in the Southeast 21

9. Estimated Beginning Salary Levels Necessary To Make Teaching Competitive With Beginning Salaries in Other Employment Alternatives for College-Graduate Workers 22

10. Beginning Salaries of College Graduates in Selected Occupations (1985) 24

11. Teacher Salary Scale Based on Education and Experience Effects on Alternative Earning Opportunities of College-Graduate Workers Applicable to Characteristics of Average College-Graduate Worker 25

12. Comparison of Average Predicted Earnings of Male and Female College-Graduate Workers in the Six Southeastern States (1985) . 27

13. Earnings of Public School Administrators and Staff (Nationwide Averages 1985) 29

14. Estimates of Cost of Achieving Competitive Levels of Teacher Pay 31

List of Figures

1. Teacher Pay, 1956-1986 (in 1986 dollars) 2

2. Comparability of Teacher Salaries With Salaries of Other College Educated Workers 14

3. Comparison of 1985 Annual Earnings of Teachers With Other College Graduates and All Workers in the Southeast 16

4. Earnings of College Graduates in the Southeast (by Occupation) . 17

5. Competitive Beginning Teacher Salaries by State and Region in the Southeast (10- and 12-Month) 23

An Analysis of the Comparability of Teacher Salaries to the Earnings of Other College Graduates in the Southeast: 1986 Update

Introduction

The improvement of teaching and the maintenance of an excellent and adequate teacher work force has been identified as the critical education need of the United States in the nineteen-eighties. To achieve their dual goals of excellence and adequacy in teacher supply, education policymakers have emphasized the need to improve teacher salaries. States in the Southeast Region have led the nation in carrying out the commitment to improve teacher salaries.

It has been recognized that we live in an increasingly competitive economy, one in which capable and talented individuals have many attractive opportunities and alternatives for work. Education policymakers in the Southeast and throughout the nation have come to realize that in order to attract and retain professionally committed teachers the public schools must offer salaries that are competitive with alternatives available in other occupations. The national commitment to improve teacher salaries during the past three years has reversed the decade-long decline of the real purchasing power of teacher salaries and has begun to close the gap between teachers' earnings and earning opportunities in competing occupations.

Between 1984 and 1986, average teacher salary levels in the U. S. rose 14.9 percent overall, exceeding the two-year growth of general wages and resulting in an average teacher salary level in 1985-86 school year of $25,240 (American Federation of Teachers, 1986, p. 7). The increases of the past three years have reversed the trend of declining real purchasing power of teacher

salaries that decreased morale in the profession throughout much of the previous decade. Figure 1 shows that the real value (in 1986 dollar equivalent) of teacher salaries has now returned to the level of 1973. The amounts shown are national averages, but the trend is also representative of the experience of the Southeast region.

Figure 1. Teacher Pay, 1956-1986 (in 1986 dollars)

Source: American Federation of Teachers, Survey and Analysis of Salary Trends 1986.

Table 1 shows the percentage growth in teacher salaries for the Southeast region and for each of the states. Among the six states of the Southeast region (Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina), the two-year percentage growth of teacher pay has been 20.2 percent

TABLE 1
Percentage Increases in Teacher Salaries
in the Six Southeastern States
(1983-1986)

State	1983-84 to 1984-85	1984-85 to 1985-86
Region	9.7%	9.6%
Alabama	9.1%	13.0%
Florida	6.9%	6.8%
Georgia	10.6%	11.8%
Mississippi	0.7%	16.0%
North Carolina	13.7%	8.0%
South Carolina	15.9%	6.4%
National Average	7.2%	7.2%

Source: American Federation of Teachers, Survey and Analysis of Salary Trends 1986. p. 17.

(9.7 percent compounded by 9.6 percent). The recent salary trends report published by the American Federation of Teachers listed five of the six Southeast states (Georgia, South Carolina, Mississippi, Alabama, and North Carolina) in the top third of the highest ranked states in the nation in terms of percentage growth of average teacher salaries since 1982-83 (American Federation of Teachers, 1986, p. 13).

Table 2 lists reported average teacher salary levels for the six Southeast states for the past four school years (1982-83 through 1985-86). Average teacher salaries in the region rose from $17,385 in the 1982-83 school year to $22,128 in the 1985-86 school year. (Estimates from other sources vary slightly in absolute amount, but the trend of significant improvement is the same.) The significant growth in teacher salaries in the Southeast has begun to reduce the deficiency between average teacher salaries in the region and average teacher salaries nationwide. The Southeast's average teacher salary level for 1985-86 stands at 87.7 percent of the national teacher salary

average, up about four percentage points since 1982-83. This figure is comparable to the most recently available data, which showed that in 1984 per capita personal income in the Southeast was about 87.4 percent of the national per capita personal income (SRCEI, 1986).

TABLE 2
Average Annual Teacher Salaries
in the Six Southeastern States
(1983-1986)

	1982-83	1983-84	1984-85	1985-86
U.S. Average	$20,719	$21,947	$23,538	$25,240
Regional Composite	$17,385	$18,288	$20,489	$22,128
Alabama	$17,850	$17,682	$20,209	$22,934
Florida	$18,275	$19,497	$21,057	$22,250
Georgia	$17,412	$18,631	$20,494	$23,046
Mississippi	$14,320	$15,582	$15,971	$18,472
North Carolina	$17,585	$18,311	$20,691	$22,476
South Carolina	$16,523	$17,384	$19,800	$21,428

Source: Southeastern Educational Information System (1983-85) and American Federation of Teachers, Survey and Analysis of Salary Trends 1986.

Significant progress has been made to improve teacher salaries in the Southeast, but continued progress in educational policy requires more information than a recounting of progress made previously. Future public decisions will require a clear indication of the goal toward which teacher salary policy should be directed, as well as an assessment of progress that has been made toward reaching that goal. The timeliness of such information is particularly important in the dynamic economic environment of today: The target is a moving one, so policymakers need continually revised information in order to maintain progress.

This report has been prepared to help fill that information need for public policymakers in the Southeast. Its purpose is to provide estimates of the beginning and average teacher salary levels that should be reached in order to ensure that the public schools are able to attract and retain talented and capable individuals as teachers. It is the third in a series of teacher salary comparability analyses that have been conducted in the region. The first two reports were prepared for the Southeastern Regional Council for Educational Improvement under the auspices of state education agencies in the region and provided data for a larger twelve-state region. The present report, prepared under the auspices of the successor organization, The Southeastern Educational Improvement Laboratory (SEIL), is set in the context of the six-state Southeast region that SEIL serves.

The present report represents both an update of the data presented and a refinement of the methods employed for analyzing the comparability of teacher salaries to earning opportunities in other occupations. Because of the change in the number of states covered by the analysis and because of the refinements that have been made in the methods of analysis, this report includes revised estimates for information relating to previous years, in addition to the detailed analysis of the most recently available data. The report includes an analysis of the time trend of the teacher salary and earning alternatives data for the three previous years and extrapolation of the existing data. Where available, data are presented for each state, as well as for the Southeast region as a whole.

The Comparability Principle

The purpose of this report is to estimate the levels of beginning and average teacher salaries necessary to attract and retain talented and capable individuals as public school teachers in the Southeast. Such estimates are based on the principle that to attract individuals into the teaching profession and to retain them as teachers the salary offered must be comparable to the earning opportunity available to those same individuals in other occupations for which they may be qualified to prepare for entry (Clark, p. 117). In this case, "comparable" means "equal", unless there can be shown to exist nonpecuniary advantages and attractions of teaching that the individuals entering the market perceive as an offsetting compensation.

The economic principle of comparability used in this analysis is based on three assumptions:

(1) individuals will choose from among those alternatives available to them the occupation perceived to have the highest expected earning level, unless the nonpecuniary satisfactions and attributes of a lower-paying occupation are perceived by the individual to be sufficient to compensate for the monetary difference;

(2) many of the desirable attributes for teachers--intellectual capacity, communications skill, energy, and creativity--are also desirable attributes for success in most other occupations in which college graduates find employment; and

(3) individuals more richly endowed with these desirable attributes are therefore more likely to command higher average salaries than individuals less endowed with such attributes. This assumption is a statement about the probability of earnings increasing with ability. It is not an assumption of an absolute or deterministic relationship.

These assumptions imply that if teacher salaries are below the average earnings for college graduates in other occupations, then the pool of potential teacher applicants will be smaller and relatively less qualified than it would be if teacher salaries were equal to or above the average earnings for college

graduates in other occupations. This connection between teacher quantity and quality and salary level has been expressed in other recent analyses by Weaver (1983), Feistritzer (1983), and Darling-Hammond (1984).

The comparability principle implies consideration of both quantitative and qualitative labor market issues. This analysis assumes that the qualitative goal of teacher work-force policy is to recruit teachers who possess abilities at least on a par with the average of other college-educated workers in the Southeast. The quantitative goal assumes the development of a pool of potential entrants to teaching that is equivalent to the pool of entrants to other occupations employing college graduates. With these targets in mind, the universe of earning opportunities for college graduates in the Southeast was selected as the basis of comparison.

Public school teaching is the largest single occupation employing college graduates. Therefore, the development of both quantitative and qualitative pools of applicants based on equivalent earnings in other college-graduate occupations seems a reasonable target. It would seem ludicrous for public policymakers to set out to recruit a teacher work force possessing an average ability level that is below the ability level of the general college-educated population. How could below-average teachers be expected to prepare students to eventually enter the work force at a level with or above present standards? Indeed, a teacher work force of only average ability may not be sufficient for the task of preparing the next generation for productive life in an increasingly competitive world economy. In that case, the policy target should be to develop a teaching profession of above-average ability compared to other college graduates; to do so would require achieving teacher salary targets even higher than those developed in this report.

Method of Analysis

The data provided in the annual March income and earnings file of the U.S. Census Bureau (March 1985, latest available data) were selected as the primary data source for describing the earning alternatives of college graduates in the Southeast. That file is compiled annually and constitutes a representative sample of all households and workers nationally and on a regional basis. The sample includes specifically identifiable observations from each state.

The March 1985 Current Population Survey (CPS) data tape was read and from it were extracted all observations of workers who met the following criteria:

- Resident in one of the six Southeast states (Alabama, Florida, Georgia, Mississippi, North Carolina, or South Carolina);
- Age 21 to 65;
- Employed on a wage or salary basis---not self-employed;
- Completed at least a four-year college degree; and
- Worked at least 40 weeks and an average of at least 35 hours per week during the previous year.

The data set was restricted to the six states because the conditions of the labor market in that region seemed most relevant to the regional audience for the analysis.

Persons over 65 and under 21 were excluded from the data set because their labor market participation patterns are heavily influenced by factors not relevant to the concerns surrounding the teacher labor market. This restriction is a continuation of the practice adopted in the previous analyses (Bird, 1985 a, b).

Persons who worked fewer than 40 weeks per year or less than 35 hours per average week were excluded because their labor force participation was deemed

to be essentially part-time and substantially different from the behavior patterns and earning opportunities of full-time workers. This restriction was increased from the 30-hour minimum used in previous reports to bring the method of analysis into conformity with customary definitions used in other labor market studies.

Individuals who reported only self-employment income were excluded from the data set because their earnings include an implicit compensation for risk bearing and a return to self-supplied capital. Because of those additional elements, the earnings of self-employed individuals could not be easily compared to the earnings expectations for a salaried position as a public school teacher.

The coding of the data in the CPS file lists years of education on a scale that counts completion of high school as 13 and completion of four years of college as 17. Only observations showing 17 or more years of education were included in the data set. Observations showing 17 years of education exactly, but showing a negative response to the question regarding completion of degree program, were excluded. This procedure produced a data set that represents only actual college graduates. This restriction was adopted since public school teachers are required to be college graduates in every southeastern state. It is a more restrictive definition of the comparison basis than was used in the previous studies.

The data set was further refined to remove a small number of anomalous observations that showed earnings relative to weeks and hours of work too low to be consistent with minimum wage laws. Observations having missing or out-of-range values for key variables also were edited from the data set.

The result of the data compilation process was a data set of 991 observations of college graduates who were employed in occupations other than teaching during the year prior to March 1985 and 191 observations of college graduates who were employed as public school teachers. The observations were analyzed in terms of the following variables: education, age, race, sex, residence by state and standard metropolitan statistical area (SMSA), number of weeks worked during the previous year, and average hours worked per week. Since the regional coverage of the analysis and the restrictions on the data set have been changed for this study, the summaries of variable values from the earlier reports could not be directly compared with the results of the analysis of the March 1985 data. To provide an appropriate comparison, data from the March 1984 and March 1983 CPS files were recompiled using the same restrictions applied to the March 1985 data.

Results of Analysis: Mean Values of Variables

The mean values for the listed variables from the 1983, 1984, and 1985 files are shown in Table 3. The mean values across the three years do not change significantly for either the nonteacher or teacher groups. The significant differences between the nonteacher and teacher groups are in terms of sex, race, and urbanism. The nonteacher group is more white (88 percent compared to 78 percent for the teachers), more male (68.9 percent compared to 20.9 percent for the teachers) and more urban (71 percent compared to 59 percent for the teachers).

One noteworthy fact shown in the summary of work-force characteristics in Table 3 is the reported average of 49.9 weeks worked for school teachers when most teaching contracts are for ten months (43 weeks) or less. This paradox

TABLE 3
Characteristics of the College-Graduate Work Force
in the Six Southeastern States

	1983	1984	1985
All Full-Time Wage/Salary Workers Except Teachers			
Education in Years (B.A. Degree=17)	17.6	17.5	17.7
Age	38.7	39.4	39.2
Race: Percent White	88.0%	88.7%	88.1%
Sex: Percent Male	69.3%	68.3%	68.9%
Number Weeks Worked (previous 12 months)	51.0	50.9	51.1
Average Weekly Hours (previous 12 months)	43.9	43.5	44.7
Residence: Percent Urban	69.7%	72.3%	71.0%
Average Annual Earnings	$26,828	$27,753	$29,688
Public School Teachers			
Education in Years (B.A. Degree=17)	17.7	17.9	17.9
Age	39.2	38.3	38.7
Race: Percent White	78.4%	79.7%	79.1%
Sex: Percent Male	21.2%	20.9%	20.9%
Number Weeks Worked (previous 12 months)	50.0	49.3	49.9
Average Weekly Hours (previous 12 months)	41.7	40.9	42.1
Residence: Percent Urban	58.4%	59.6%	59.1%
Average Annual Earnings	$16,238	$17,423	$18,940
AFT Salary Estimates	$17,386	$18,288	$20,489

AFT Salary Estimates compiled from American Federation of Teachers, Survey and Analysis of Salary Trends 1986; all other data from U. S. Census Bureau, Current Population Survey, March 1983, 1984, 1985/ Machine-Readable Data Files.

may result from the subjective way Census reporters collect data for this item. The information on the Census tape is based on a verbal response to a question about the number of weeks worked and weeks laid off during the preceding year in the respondent's primary occupation. Since teachers are not really "laid off", this reported figure may reflect teachers' perceptions of their employment as being for a full year with salary paid over a lesser period. This view is bolstered by the fact that most teachers receive job-related insurance benefits on a twelve-month basis and do not generally qualify for unemployment compensation during the two summer "off" months.

The average earnings level of nonteachers in 1985 was $29,688, compared to $18,940 for teachers in the CPS sample. Salary survey data from the American Federation of Teachers (AFT) indicated an average teacher salary level of $20,489 for the region.[1] The calculated "Average Annual Earnings" will be used as the reference for teacher salary levels throughout the rest of this paper, except where 1986 teacher salaries are referenced.

Table 4 shows the difference between the CPS estimates of average earnings for nonteaching college graduate workers in the Southeast and the estimates of average teacher salary levels for each of the years 1983-85. The table also compares the AFT teacher salary estimate for 1986 with a projected nonteacher mean earnings figure based on a linear extrapolation of the 1983-1985 CPS sample means. These results highlight a difference in salary of about $10,000 between average teacher salaries and the average salaries of college graduates working in other occupations in the Southeast.

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[1]This AFT teacher salary estimate may be an overestimate, since AFT survey data generally overrepresent teachers in urban areas. However, the AFT salary estimates are based on a larger set of observations and are included here for reference.

Table 4 also incorporates an analysis of the time trend of teacher pay compared to the mean earnings of college graduates in other occupations. This table indicates that from 1983 to 1985 the average earnings of college-graduate workers in occupations other than teaching grew by 10.7 percent while average teacher salaries in the Southeast grew by 16.6 percent.

TABLE 4
Average Earnings of College-Graduate Workers
in the Six Southeastern States
(1983-86)

	1983	1984	1985	1986
Non-teachers	$26,828	$27,753	$29,688	$31,178(est)
Teachers	$16,238	$17,423	$18,940	$22,128(AFT)
Difference	$10,590	$10,330	$10,748	$9,050 $10,104-10,727(adj)

Note: the 1986 nonteacher earning amount is a trend line estimate based on the previous three years. Actual CPS data for 1986 are not yet available.

Source: Data compiled from U. S. Census Bureau, Current Population Survey, March 1983, 1984, 1985/ Machine-Readable Data File. 1986 teacher data compiled from American Federation of Teachers, Survey and Analysis of Salary Trends 1986.

While teacher pay increases have been large in percentage terms, they have done little to remove the absolute difference between teacher pay and the earning opportunities for college graduates in other occupations. This is demonstrated graphically in Figure 2.

Based on the 1983 through 1985 trend of nonteacher college graduate earnings, a linear extrapolation of the data forecasts that nonteacher earnings

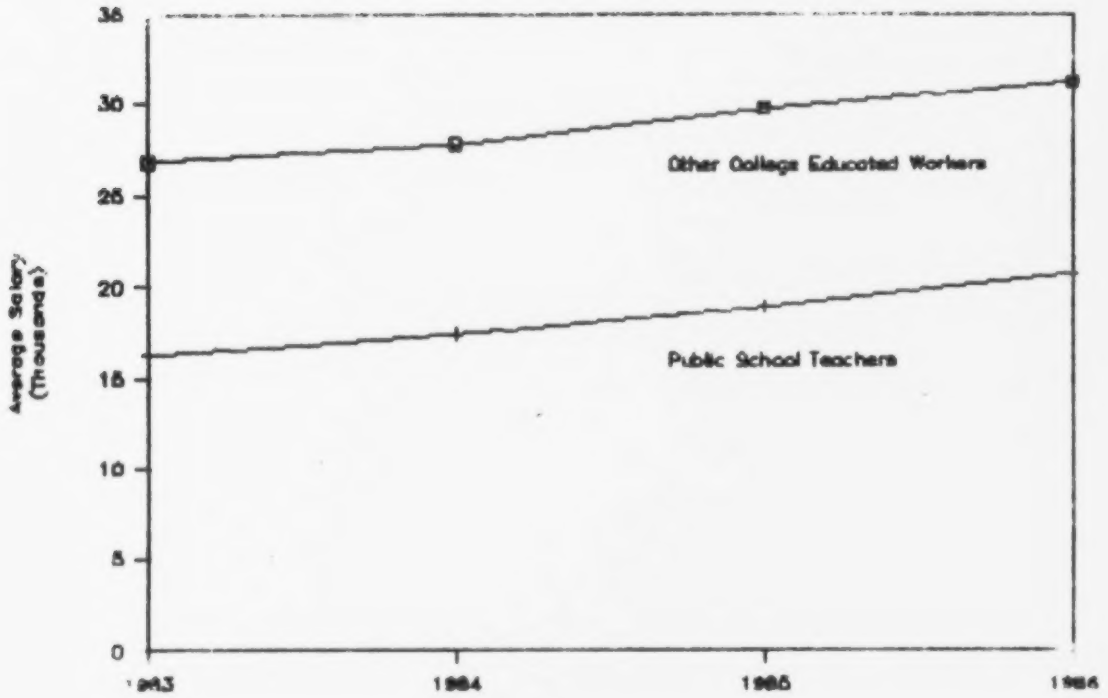

Figure 2. Comparability of Teacher Salaries With Salaries of Other College-Educated Workers

will have risen to $31,178 for 1986. It already has been estimated by AFT that average teacher pay for 1986 was only $22,128 in the Southeast. This means that the 1986 difference between the AFT estimate of average teacher pay and the average earnings of other college graduates in the region will be $9,050. Although this is about $1,500 less than in 1985, it is based on AFT data that have consistently overestimated CPS average teacher salaries during the period of 1983-85.

Since the AFT estimate has ranged between 5.0 and 8.2 percent higher than indicated by CPS data, the AFT figure for 1986 could be adjusted to account for this overestimate, resulting in an adjusted figure ranging from $20,451 (5.0 percent lower) to $21,074 (8.2 percent lower). These adjusted figures result

in a difference from the average nonteacher estimate ranging from $10,104 to $10,727. These differences are consistent with the previous differences and demonstrate that teachers have made almost no gain in salaries since 1983 when compared to the earnings of other college graduates in the Southeast.

Table 5 compares for each state in the Southeast region the average salary levels of teachers in 1985 (1984-85 school year) with March 1985 average pay for college-graduate workers and for all full-time workers (all education levels). The data show that teacher salaries are presently closer to the mean for all workers than to the mean of college-educated workers. This relationship is illustrated in Figure 3. This finding implies that present teacher salary levels do not adequately recognize the market value of the educational attainment that is required of teachers, which may be a remnant of the oversupply of teachers in the 1970s.

The data available in the 1985 CPS sample also were analyzed on the basis of the specific occupational codes reported for each observation. Table 6

TABLE 5
Comparison of Annual Earnings
of All Workers, College-Graduate Workers, and Teachers
(1985)

	All Workers	Teachers	College Graduates
Southeast	$16,628	$20,489	$29,688
Alabama	$17,023	$20,209	$29,687
Florida	$16,958	$21,057	$29,906
Georgia	$17,912	$20,494	$32,799
Mississippi	$14,951	$15,971	$24,974
North Carolina	$16,226	$20,691	$28,782
South Carolina	$15,944	$19,800	$30,626

Source: Bureau of Labor Statistics, Average Annual Pay by State and Industry, 1985, USDL 86-361 and data compiled from U. S. Census Bureau, Current Population Survey, March 1983, 1984, 1985/ Machine-Readable Data Files, and American Federation of Teachers, Survey and Analysis of Salary Trends 1986.

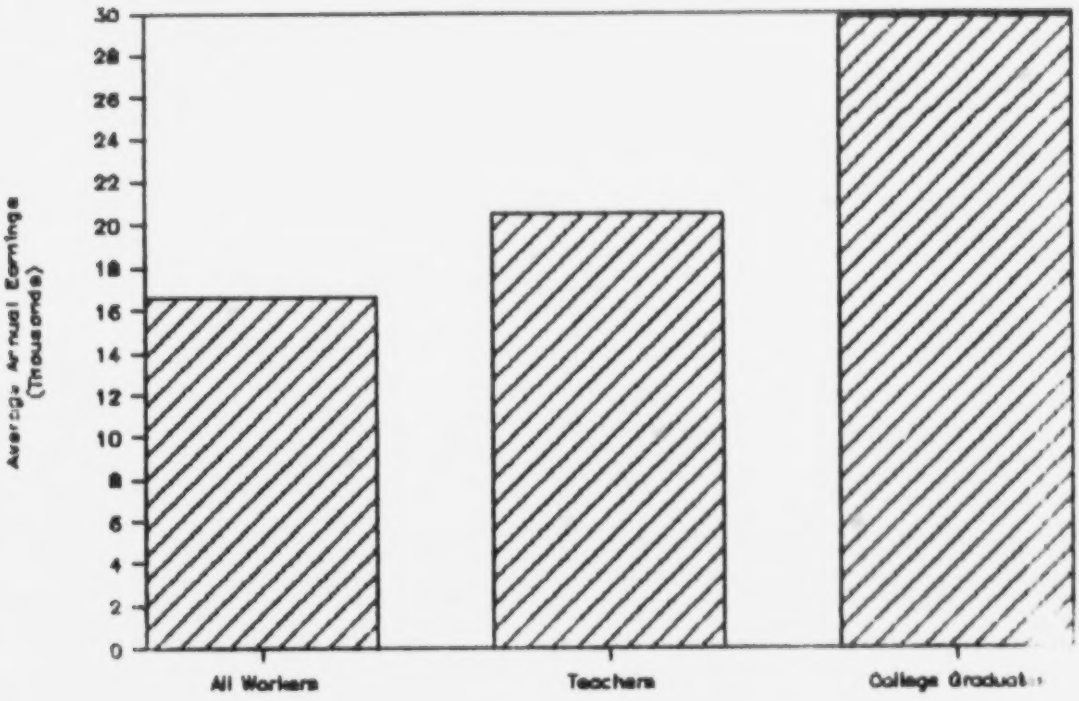

Figure 3. Comparison of 1985 Annual Earnings of Teachers With Other College Graduates and All Workers in the Southeast

shows the average earnings of college-educated workers in a representative selection of occupation categories. Average salaries of physicians were the highest at $52,248. Among major categories, registered nurses reported the lowest average earnings amount ($22,171), but that figure was $3,231 above the estimated teacher salary average for 1985 (Figure 4).

TABLE 6
Earnings of College-Graduate Workers
in Selected Occupations
in the Six Southeastern States
(1985)

Physicians	$52,248
Lawyers	$39,313
General Management	$34,726
Computer Sciences	$34,318
Engineering	$34,246
Post-Secondary Teachers	$29,493
Sales occupations	$29,473
Accountants	$28,872
Registered Nurses	$22,171

Source: Data compiled from U. S. Census Bureau, Current Population Survey, March 1983, 1984, 1985/ Machine-Readable Data File.

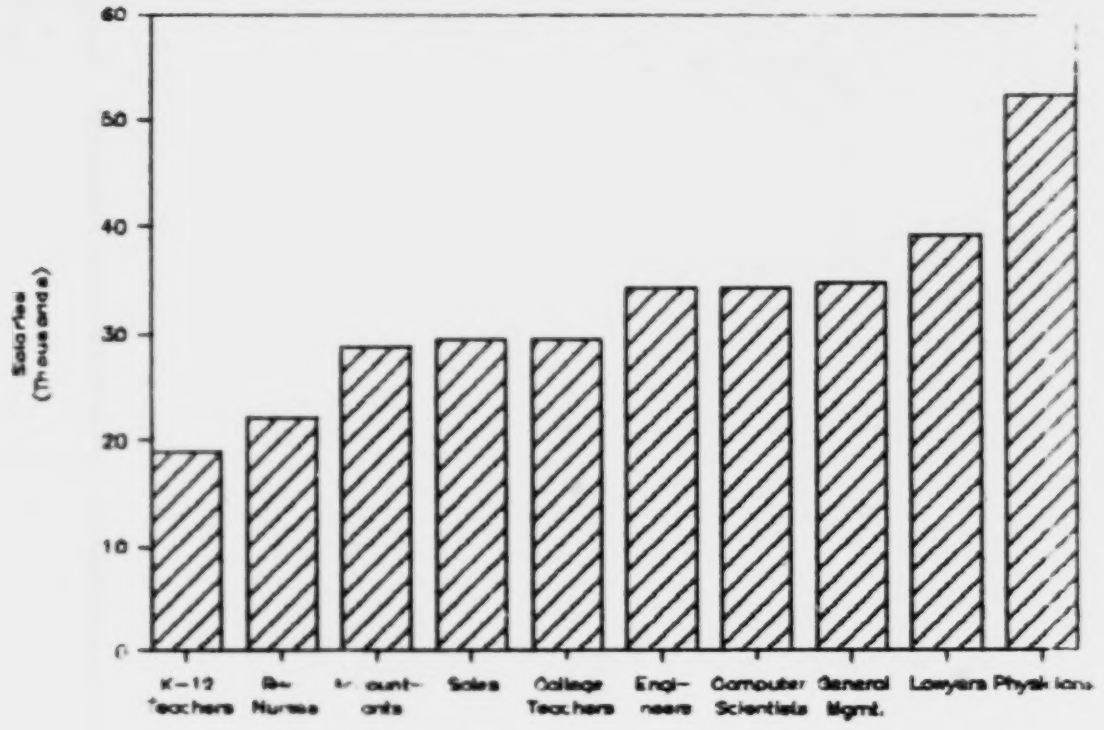

Figure 4. Earnings of College Graduates in the Southeast (by Occupation)

Earnings Comparability Multiple Regression Model

The comparisons of average teacher salaries to average earnings of non-teaching college graduates suggest the magnitude of the deficiency in teacher pay, but such comparisons do not provide a precise estimate of a teacher pay target that would place the profession on a par with other alternatives for college graduates. Simple comparisons of averages are inadequate because they do not take into account the variations in characteristics that may be relevant between teachers and nonteachers. For example, teachers in the CPS sample reported a slightly higher level of postgraduate education than nonteaching college graduates. It would be desirable to develop a target pay estimate for teachers that maintained an allowance for that additional education.

To provide a way of estimating alternative earning levels based on variations in the values of the important variables, a regression equation was developed to express the statistical relationship between annual earnings of nonteaching college graduates and various explanatory variables. The regression analysis results are summarized in Table 7.

The regression equation estimates the natural logarithm of annual earnings as a function of education, experience, experience squared, sex, race, urbanism, weeks worked, hours worked, and state of residence. The inclusion of the state of residence feature in the equation improves the explanatory power of the equation and allows the generation of state-specific comparable earnings estimates.

The variable "experience" is a transformation of data previously listed in the description of means for items in the CPS data sample. It is a proxy for potential work experience that is obtained by adjusting age for education. "Experience" in the regression equation is age minus education minus 5.

TABLE 7
Results of Multiple Regression Analysis
of Earnings of College-Graduate Workers
in the Six Southeastern States

Dependent Variable = Natural Log of Annual Earnings

Observations = 991 Degrees Freedom = 977

R-Square = .3351 Adjusted R-Square = .3270

Sum Squared Residuals = 193.70 Durbin-Watson = 2.711

Standard Error of Estimate = .4450

Variable	Coefficient	T-Statistic
Constant term	5.88731	15.896
Education Years	0.07126	4.380
Experience Years	0.03022	5.700
Experience Years Squared	-0.00053	-4.142
Sex (Male=1; Female=0)	0.32465	9.987
Race (White=1; Black=0)	0.16616	3.698
Urban Resident (in SMSA=1, not=0)	0.14597	3.241
Weeks Worked Previous Year	0.03271	7.682
Average Weekly Hours Worked	0.01284	6.483
Alabama Resident (yes=1;no=0)	0.11146	1.586
Florida Resident	0.07980	1.398
Georgia Resident	0.21507	3.410
North Carolina Resident	0.06829	1.175
South Carolina Resident	0.12159	1.710

Source: Data compiled from U. S. Census Bureau, Current Population Survey, March 1985/ Machine-Readable Data File.

The regression analysis shows that only about 1/3 of the total variation in earnings is explained by this set of variables (R-Square = .335). However, each of these variables has a positive effect on the estimated value of annual earnings except for "experience squared." The negative sign for that variable indicates that experience increases expected earnings, but at a diminishing rate.

The regression analysis is the basis for the estimates shown in the next two tables. These estimates were obtained by substituting into the regression equation the mean education years for teachers in the CPS sample and other values based on the average characteristics of the nonteaching college graduates in the Southeast. The results estimate the average earning opportunity within each state for a person with the education of the typical teacher, but who chooses a nonteaching occupation.

The regression model used here provides a refinement of analysis over the simple comparison of average earnings between groups, since it isolates the separate effect of each variable on predicted earnings outside teaching. The regression model of earnings comparability provides for the manipulation of several explanatory factors at once. For example, if the values of experience and education are set to entry-level expectations, the model will estimate a competitive entry-level salary. In each instance, the result of the regression model comparison procedure is a nonteaching annual earnings amount that reflects the mean earnings opportunities for workers with the same experience, education, and personal and demographic characteristics. This approach is particularly useful in constructing a salary schedule that is sensitive to market conditions as key factors, such as experience and education, are varied across the work force.

The number of weeks worked in the comparison group was set to 52 weeks (twelve months) to estimate a full-time earnings comparison amount. This estimate was then scaled by a factor of 10/12 to reflect the fact that most teaching contracts stipulate only ten months of work requirement. Both the 12-month and 10-month comparisons are shown in Table 8.

TABLE 8
Estimates of Average Teacher Salary Levels
Necessary to Make Public School Teaching
Salaries Comparable With Other Occupations
for College Graduate Workers in the Southeast

	Ten-Month Basis[2]	Twelve-Month Basis
Regional Composite	$24,463	$29,356
Alabama	$24,825	$29,790
Florida	$24,051	$28,861
Georgia	$27,535	$33,042
Mississippi	$22,207	$26,648
North Carolina	$23,776	$28,531
South Carolina	$25,078	$30,093

Source: Data compiled from U. S. Census Bureau, Current Population Survey, March 1985/ Machine-Readable Data File.

As shown in Table 8, on the twelve-month basis it would be necessary to pay teachers $29,356 in order to match the earning opportunity in nonteaching occupations available to college graduates in the Southeast. On a state-by-state basis, that earning opportunity estimate varies from a high of $33,042 in Georgia to a low of $26,648 in Mississippi. In each case, the results of the regression model point to a significant difference between current teacher pay and the pay levels necessary to make the teaching profession competitive with other earning opportunities in the region.

The ten-month basis of comparing earning opportunities results in amounts closer to present teacher salary levels. On average in the Southeast Region, it would be necessary to pay teachers $24,463 (compared to 1985 average teacher pay of $18,940, this is an increase of $5,523) to make teaching salaries comparable to other earning opportunities for college-educated workers calcu-

[2]The twelve-month salary was generated directly by the regression model. The ten-month salary was derived by taking 10/12 of the twelve-month salary figures.

lated on a ten-month basis. The difference between the comparable salary amount on the twelve-month basis and on the ten-month basis is $4,893.

Since most occupational alternatives to teaching are twelve-month employments, it is questionable whether the ten-month comparison basis is relevant. The estimate derived on the ten-month basis is an accurate target for teacher pay policy only if college-educated workers generally perceive the two months of "leisure" time associated with teaching to be worth the difference of $4,893 that on average they would sacrifice. The inequality between teacher pay levels and the earning opportunity in twelve-month occupations probably is a disincentive to enter the teaching profession for persons who do not value leisure highly.

Table 9 shows estimates of beginning salary levels for teachers that would be comparable to the average beginning earning opportunity in other occupations for college graduates. The twelve-month regional estimate of

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TABLE 9
Estimated Beginning Salary Levels
Necessary To Make Teaching Competitive
With Beginning Salaries in Other Employment
Alternatives for College-Graduate Workers

	Actual*	Ten Month**	Twelve Month
Regional Composite		$16,341	$19,609
Alabama	----	$16,166	$19,399
Florida	$15,158	$16,066	$19,279
Georgia	$14,329	$18,392	$22,071
Mississippi	$13,875	$14,833	$17,800
North Carolina	$15,680	$15,882	$19,058
South Carolina	$14,908	$16,751	$20,101

* From American Federation of Teachers, Survey and Analysis of Salary Trends, 1986 (1985 data); State-reported data for Mississippi and South Carolina.
**Estimates derived by taking 10/12 of twelve-month salary figures.

$19,609 is included in Table 9 for comparison. The actual beginning salaries for new college graduates who enter teaching are reported for each state except Alabama. These results are presented graphically in Figure 5.

Additional data supporting levels against which beginning teacher salaries must compete is provided by the annual salary offer surveys conducted by the College Placement Council. Selected results from the July 1985 survey are reported in Table 10. Results indicate nationwide starting salary offers

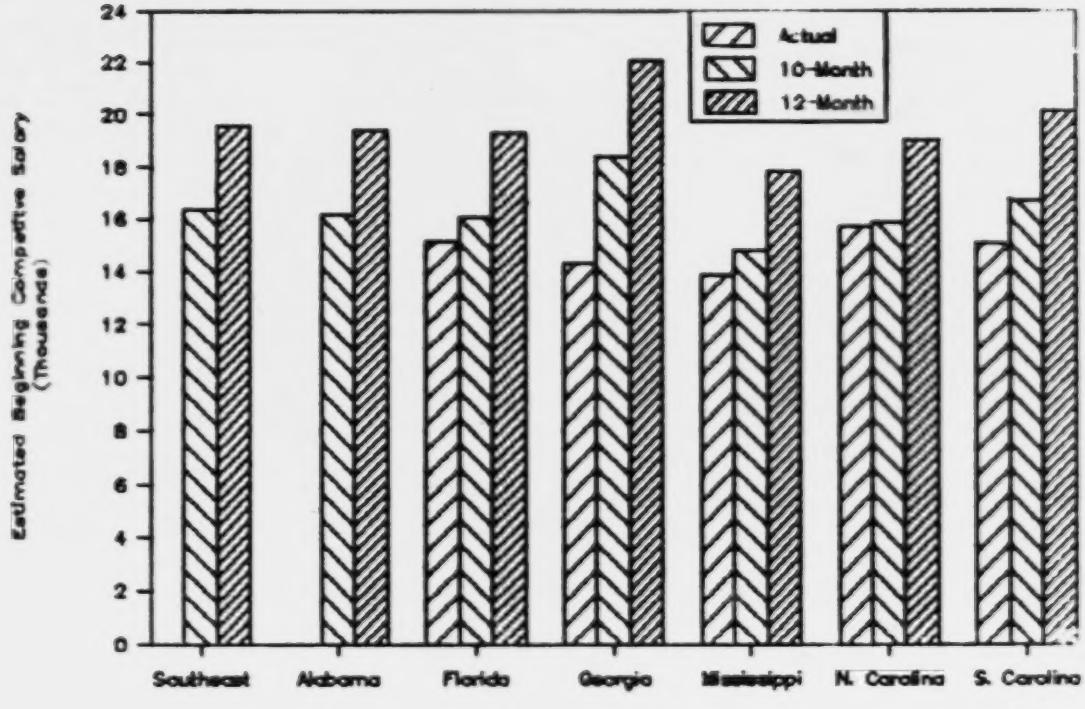

Figure 5. Competitive Beginning Teacher Salaries by State and Region in the Southeast (10- and 12-Month)

TABLE 10
Beginning Salaries of College Graduates
in Selected Occupations
(1985)

Engineering	$27,180
Financial Analysis	$20,916
Accounting	$20,460
Health Occupations	$20,448
Personnel	$20,160
Business Administration	$19,620
Communications	$19,620
Sales	$19,116
Advertising	$18,012

Source: College Placement Council, CPC Salary Survey, March 1986.

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to new college graduates ranged from $27,180 for average engineering positions to an $18,012 average in advertising. Beginning salaries in teaching are below these beginning salaries in other occupations. Further, the most academically able students tend to greatly overestimate the beginning salaries of other occupations while slightly underestimating beginning teacher salaries (Berry, 1985), a factor that further discourages their consideration of teaching careers.

Table 11 illustrates the application of the regression model to generate a recommended teacher salary schedule. The coefficients of the regression model reveal how the earnings opportunities in nonteaching alternatives are affected by variations in education and experience. By successively substituting different values for experience and education into the regression equation, it is possible to show how earnings in nonteaching occupations vary as experience or education increases.

Table 11 shows the average earnings for a person with a Bachelor's degree (Code 17 under "Years of Education") and no experience is forecast by the model to be $19,609 based on beginning earnings in nonteaching occupations.

TABLE 11
Teacher Salary Scale Based on Education and Experience Effects on Alternative Earning Opportunities of College-Graduate Workers Applicable to Characteristics of Average College-Graduate Workers

Years of Experience	Years of Education			
	17	18	19	20
0	$19,609	$21,057	$22,612	$24,282
1	$20,210	$21,703	$23,306	$25,028
2	$20,830	$22,369	$24,021	$25,795
5	$22,807	$24,492	$26,301	$28,294
10	$26,527	$28,487	$30,591	$32,850
20	$35,887	$38,538	$41,384	$44,441

Substituting higher values for years of experience into the regression equation results in higher salary estimates. The average person with a Bachelor's degree and five years of experience is predicted to earn $22,807 and to earn $35,887 with twenty years of experience. Not surprisingly, average predicted earnings increase as education increases. With no experience, the predicted salary increases from the base salary of $19,609 to $21,057 with just one year of postgraduate education and to $22,612 with just two years of postgraduate education. Finally, with twenty years of experience, the average person with a four-year college degree is predicted to earn $35,887, while the average person with the same experience, but with three years of postgraduate education should earn $44,441.

The information in Table 11 shows that earnings in nonteaching occupations tend to increase substantially as experience and education levels increase. Therefore, to make teaching salaries comparable with earning opportunities in other occupations, it may be necessary to do more than simply raise beginning and average teacher salary levels. The salary scale in

Table 11 suggests the need for steeper gradients relative to experience and education than have been typical in public school system practice.

Policymakers who want to ensure that teaching salaries are competitive need to make note of these issues. When choosing an occupation, people are influenced by more than the beginning salary opportunity; potential for increased earnings based on experience and additional education also is considered. Even if an occupation offers a relatively attractive high beginning salary, potential entrants may be dissuaded from occupational entry due to a restricted potential for earnings growth compared to other occupations requiring similar initial training. Such increased earnings potential also can influence decisions to change occupations after entry.

To be comparable with other occupations, teacher salary schedules should be designed to reflect the kind of variation relative to experience and education that occurs in alternative occupations as demonstrated in Table 11. This suggests a beginning teacher salary at this time in the Southeast of $19,609 for a person with a Bachelor's degree and no teaching experience. Increments should be available that allow for a salary of $44,441 with twenty years of experience and three years of postgraduate education. Both the beginning salary and rate of earnings growth are greater than presently found in most teacher salary policies.

The regression analysis (Table 7) also shows that sex has the largest impact on the predicted earning opportunities of college graduates. The differences between male and female earning opportunities regionally and by state are summarized in Table 12.

Substitution of a variable value for male-only alternatives into the regression equation results in a predicted earning opportunity of $32,015 for

TABLE 12
Comparison of Average Predicted Earnings
of Male and Female College-Graduate Workers
in the Six Southeastern States
(1985)

	Male	Female
Regional Composite	$32,015	$23,139
Alabama	$32,488	$23,482
Florida	$31,476	$22,750
Georgia	$36,035	$26,045
Mississippi	$29,062	$21,005
North Carolina	$31,116	$22,489
South Carolina	$32,819	$23,721

Source: U.S. Census Bureau, Current Population Survey, March 1985/ Machine-readable Data File.

male college graduates in nonteaching occupations in the Southeast. This represents the level of average teacher salaries which would have been necessary in 1985 to make teacher salaries equally competitive with the average of other occupations for male college graduates in the Southeast.

The average earning opportunity for female nonteaching college graduates was $23,139, a difference of $8,876 from the male earning opportunity. The average teacher salary amount for 1985 ($18,940) is much closer to the average earning opportunity for female college graduates outside teaching than for male graduates. The lower earnings of women are partly the result of the lingering employment discrimination and the lower experience levels that result from interruptions in the labor force participation of women.

The analysis thus far has concentrated on teacher salaries in comparison to earning opportunities in all other occupations of college graduates. That comparison may be seen as slightly distorted if one perceives classroom teaching not as a professional career in itself, but merely as the entry level

of a more broadly defined career opportunity in public school instruction and administration. If this latter view is correct, then the appropriate comparison is between the average earnings of all education establishment workers (teacher through district superintendent) and the average earnings in other occupations employing college graduates. Unfortunately, data are not available at the regional or state levels to identify the salaries of school administrators with the same precision by which teacher salaries may be examined.

Table 13 provides a list of mean salaries of administrative staff on a nationwide basis. The national average salaries for upper level administrators seem to fit the pattern of increase suggested in the salary schedule derived from the statistical earnings comparability model (Table 11). For example, the salary level of $44,441, which the model estimated as the comparable earning opportunity for a person (in the Southeast) with twenty years of experience and three years of postgraduate education, is only $2,347 above the national average salary of high school principals.

Perhaps if potential entrants into the teacher labor market were more aware of salary levels in education beyond those of classroom teachers, they would perceive the earning opportunity in the general field of education as more nearly comparable to opportunities elsewhere. If college students and others did perceive an educational career in this way, the ability of public schools to attract capable new recruits into the classroom might be enhanced.

There is, however, a serious drawback to the strategy of focusing on the "education career" rather than "teaching" in order to improve the perception of earnings attractiveness. That strategy does nothing to ensure that capable and talented individuals will remain in the classroom as teachers. In fact, it

TABLE 13
Earnings of Public School Administrators and Staff
(Nationwide Averages 1985)

Superintendent	$56,954
Assistant Superintendent	$48,003
Program Directors	
Finance	$40,344
Instruction	$43,452
Public Relations	$35,287
Personnel	$44,182
Supervisors	$34,422
Principals	
Elementary	$36,452
Secondary	$42,094
Assistant Principals	
Elementary	$30,496
Secondary	$35,491
Counselors	$27,593
Librarians	$24,981
Classroom Teacher	$23,587

Source: Educational Research Service, Salaries Paid Professional Personnel in Public Schools, 1984-85.

generally encourages the brightest and ablest to seek out nonteaching opportunities for advancement. Advertising the earnings opportunities in educational administration may attract more people into teaching as the entry point for the educational career, but their entry could be with a view toward moving out of the classroom and into the office.

To attract and retain talented individuals as teachers, the earnings opportunity in teaching itself must be comparable to those amounts that

individuals with similar education and experience could earn in other occupations in the region.

Conclusions and Recommendations

To make teaching a career choice that is competitive with other occupations available to college graduates, the salary levels of teachers should be made comparable to the nonteaching earning opportunities of college graduates. The analysis described in this report shows that the comparable level of average earnings for college graduates is $29,356 on a twelve-month basis. Unless teaching presents some favorable attributes that significant numbers of capable college graduates perceive as valuable substitutes for income, the average level of teacher salaries should be equal to that amount.

There are indications that in the past the prestige, the work schedule, and the work environment of the teacher were perceived in a favorable way that permitted effective recruiting of teachers without salary equality (Berry, 1984). Unfortunately, that perception of teaching seems to have vanished, and recent studies indicate that relative to other occupations, teaching may carry a negative burden of nonpecuniary attributes (Feistritzer, 1984; Darling-Hammond, 1984; Berry, 1985). A recent poll of former teachers by Harris (1985) suggests that teachers who have left the field find their new work more rewarding than teaching in terms of nonpecuniary attributes. In the Southeast, working conditions of teachers seem to be a more important consideration for the current teaching force than salaries (Berry, 1985). This is a situation that may hinder the ability of schools to attract and retain teachers regardless of pay level.

It is recommended, therefore, that policymakers devote attention to teacher compensation in its larger context: work toward improvements that emphasize both the monetary and the intrinsic rewards of teaching.

States in the Southeast have made great improvements in teacher salaries in the past three years. They have reversed the longstanding decline in the real level of teacher salaries and have made some movement in the direction of closing the large gap between teacher salaries and earning opportunities for college graduates in other occupations. Further progress will require continuing commitments to increase the level of public support for the schools.

Table 14 shows estimates of the additional annual expenditure for education that would be necessary in each state to bring teacher pay up to the level of comparability suggested in this report. These estimates were prepared by calculating the difference between actual average teacher salaries in each state in 1985 and the estimated earning opportunity calculated for college graduates in nonteaching occupations in each state. The resulting difference was then multiplied by the number of public school teachers employed in each state in that year. The necessary new expenditures total almost $2.8 billion for the region when based on the twelve-month comparability calculation. The

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TABLE 14
Estimates of Cost of Achieving Competitive Levels of Teacher Pay

	Ten Month	Twelve Month
Alabama	$299,406,250	$359,287,500
Florida	$561,072,917	$673,204,256
Georgia	$588,647,593	$706,377,112
Mississippi	$225,845,243	$271,014,291
North Carolina	$366,415,467	$439,698,560
South Carolina	$289,499,203	$347,399,043
Regional Total	$2,330,886,673	$2,796,980,762

regional total is $2.3 billion if the ten-month basis is used. These totals do not include the costs of additional retirement benefits or Social Security tax payments that would accompany salary increases. Neither do they include estimates of the increases in school administrator salaries that would likely accompany teacher pay increases.

The estimates in Table 14 indicate that substantial improvement in the competitiveness of teaching as an occupation will require massive increases in the level of public support for education. Realistically, it is not likely that such increases can be achieved rapidly: The fiscal constraints facing state governments today are simply too great. What should public policymakers do? To do nothing and to allow teacher salaries to lag 30 percent behind other earning opportunities for college graduates is a course to educational ruin. It would lead to worsening decline in the quality of teaching as the best and brightest among the next generation choose higher paying occupational alternatives.

In this difficult situation policymakers will have to find ways to improve the attractiveness of teaching that involve more than just money. The following recommendations are offered as possible strategies for improving the attractiveness of teaching:

1. Emphasize classroom teaching as the entry point to a broader education career and attack the widespread perception of teaching as a low paying occupation by publicizing to students and parents the whole range of salaries in the education establishment.
2. If financial resources are not adequate to raise the average of all teacher salaries to the comparability level, focus the available dollars on closing the gap between beginning teacher salaries and

beginning salaries in other occupations. This will make teaching more attractive as a first career choice for capable college graduates, even if many of them do not remain in the field permanently. This is especially important in light of the aging of the current teacher population and the need for additional teachers due to educational reform efforts, necessitating attracting many more new teachers into the profession in the near future.

3. Make explicit efforts to eliminate the ten-month versus twelve-month difference between teaching and other occupations. For example, businesses wishing to promote educational improvement could cooperate with schools in providing meaningful summer internship opportunities for teachers. Such a program would provide both supplementary income and experience that can be turned to effective use in the classroom. It may, however, provide alternative occupational choices for teachers.
4. Increase the opportunities for some outstanding teachers to earn above-average salaries through greater differentiation of instructional duties and responsibilities. Gradations of senior teachers, master teachers, or supervising teachers could improve the attractiveness of teaching by enhancing the image of professionalism, as well as by providing some visible examples of high-earning opportunities in the field.

The recommendations above are offered as strategies to complement the continuing effort to raise the general level of all teachers' salaries in the Southeast. The focus of public policy should be upon improving the attractive-

ness of teaching as a career opportunity for the most capable and qualified among college graduates. That goal implies a quantum improvement in teacher pay, but it is important to recognize that teacher pay improvement is not a one-time act. Teacher pay must be seen as continually improving and growing with earning opportunities in other occupations. It also is important to recognize that pay is only one dimension of the forces that influence the attractiveness of teaching as an occupation. Effective policy to ensure an adequate and qualified teacher work force must address the issues of working conditions, professional prestige, and career growth potential along with the perennial issue of pay.

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